Rethinking the Packaging Workflow: Golden Masters and Color Spaces

Mike Strickler
MSP Graphic Services
Printing Today: Multiple Outputs
Multiple Destinations = Multiple Transformations

- Different inks and substrates
- Changes in density, hue, tonality, ink trapping
- Change in color mode:
  - CMYK and RGB to 5-, 6-, 7-color process
  - Spot color to CMYK
  - Spot color to multicolor (ECG)
- Change in print order (overprint color)
Color Remapping Examples

PANTONE®
Reflex Blue C

CMYKOV Coated (Digital Press)

Remapped value
Color Remapping Examples

- Original value
- Remapped value

CMYK (Wide Web Flexo)
Design Complexity = Conversion Challenges

- Spot color vector objects
- Transparency
- CMYK vector object
- CMYK image
Early-Binding Normalization: A Reliable Stake in the Ground
But Choices Have Consequences!
Early-Binding Normalization: a Good Tradeoff?

- Reduces complexity up front
- Minimizes need for special skills or software
- Comforting predictability
- May distort or diminish customer colors
- May later require difficult retouching to match new targets
- Risk of losing track of original colors
Late-Binding Conversion: One File, Many Outputs

Source Document

Spot color vector objects
CMYK vector objects (master color space)
RGB Images

“Smart” PDF-X conversion

CMYK Offset
ECG Flexo
WF Inkjet
Multicolor Digital
Dye Sublimation
All other destinations
What is a “Golden Master” PDF?

An optimized, flexible source file:

- Errors fixed
- Retains original design colors
- Original fonts (not outlined)
- Usually flattened
- Data-rich—all objects tagged, spot & process colors defined
Why a “Golden Master”?

- Serves as a reliable, permanent record of brand owner's intentions
- Retains as much flexibility as possible
- Saves time
- Makes more effective use of skilled prepress labor
Build the System
Have Profiles for any Intended Print Condition
Building the Master: Define all colors!
PDF-X4: A Big Container

Document color space intent: CMYK, RGB, Multicolor (X-5n)

Tagged ICC profiles for vector & image objects:

• RGB
• CMYK
• Lab

Embedded spot color names, measurements: solids, tints, overprints on black (opacity)

Transparencies
Automate: Dedicated Color Server

- Converts complex PDFs: multiple color spaces, spot color blends, tints, overprints
- Can read and use CxF/X4 spot color data
- Converts entire document in seconds
- Can be highly accurate
**Communicate: Spot Color Reports**

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Communicate: Accurate Proofing
Dos and Don’ts

- **DO** always have or make a “package” with all job assets
- **DON’T** have customers make PDFs or convert colors—that’s *your* job
- **DO** assume that variety of print and virtual outputs may be used
- **DON’T** reflexively convert RGB images or designs to CMYK
- **DO** make sure that all objects are correctly tagged with ICC profiles
- **DO** export Golden Master design as PDF-X3 or higher
- **DO** use smart color server technology to automate PDF conversions
Summary:

- Customer expectations guide the process; target color to serve *their* needs

- Preserve master documents with original customer art and colors intact. When in doubt ask for “packages” with all assets included.

- Make master PDFs data-rich: Output intent, all objects tagged, spot colors defined, with CxF/X4 embedded. Think PDF-X4.

- Target and convert color at the end of the workflow for the specific output condition

- Master current color management and PDF technology to leverage the power of the Golden Master.
Thank you
Golden Masters and Late-binding Conversions: 
A Case Study

Jack Frank
MPS-Westrock
Golden Masters for Extended Gamut

- Packaging is **not** printed with Spot inks.
- Spot inks are simulated using **CMYK plus OGV** builds.
- Color is created on press.
- Instead of mixing color in the ink room.
Golden Masters for Extended Gamut

- PANTONE 185 C
- EG 185
- PANTONE 286 C
- EG 285
- PANTONE 365 C
- EG 365
- PANTONE 165 C
- EG 165
What is a Golden Master?

- A *Golden Master* is the final version of a production file.
- *Golden Masters* can be trapped.
- *Golden Masters* are as device-neutral as possible.
- *Golden Masters* retain spot colors and are unconverted to EG recipes.
Golden Master files are CMYK + SPOT

- Converted as they are sent to the proofer.
- Converted before they are checked (QC'd).
- Converted prior to Imposition and plate output.
Converting files on Output

- At the imposition stage, files are harvested and then converted via a hot folder.
- There are no surprises because the converted files have been proofed and Qc'd at the 1 up stage.
- The freshly converted files are used to populate the layout and make plates.
Benefits of Converting files on Output

- Changes to the profile or color builds are dynamically applied without having to redo files.

- One file can be used for different print conditions - location, press, stock, ink, screening
Proofing EG without Converting

- Allows graphics providers to do predictive proofing without having to supply converted files.

- We want CMYK + Spot color files from suppliers.

Proof of GRACoL2013 + SPOT (Pantone XGC) = Printed EG
No Special Equipment or Software

- Not every proofing RIP can handle Extended Gamut files, and proof them correctly.

- Some proofing RIPS are better at spot colors, and do a better job of predicting how colors will render, including the tints and overprints of the spot colors.

- Providers will target the desired end result and not the cmykogv base components.
How To Proof EG without Converting

- Files are built with Pantone XGC spot colors.
- Pantone XGC digital libraries are imported into the proofing device.
- Output CMYK (GRACoL2013) + spot colors (Pantone XGC).
Summary

- **Golden Masters and Converting files on Output**
  - allows us to make changes to the profile or color builds and dynamically reflect those changes on conversion without having to redo files.

- **Proofing *without* Converting**
  - Allows graphics providers to do predictive proofing without having to convert files.
Thank you for attending!